INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

1-DRC-1

EVIDENCE REFERENCE:

Exhibit 1, Tab 1, Schedule 3, p. 4

Preamble:
HOL indicated that "residential and commercial customers are adopting electrified technologies – such as electric vehicles (EVs), solar generation, storage systems and heat pumps – at a steadily rising rate." HOL notes that "the combined effect of these developments is an upward pressure on electricity demand, a pressing need for expanded system capacity, and emerging requirements for tools, programs, and human capital resources to fulfill customer expectations (especially for uninterrupted service) in an increasingly electrified environment."

QUESTION(S):

a) Please discuss the impacts of the growing consumer interest in EVs and associated increase in EV penetration in HOL's service territory, on HOL's distribution system planning, load forecast, productivity, and OM&A costs

b) Please identify in the record where HOL provides details of how technological advancement will require training their workforce over the course of years to ensure HOL is able to sustain a safe and reliable grid as the energy transition accelerates.

c) Please confirm and comment on whether the anticipated widespread adoption of distributed energy resources ("DERs") and EVs over the next five years and beyond will require investments in

HOL's workforce and please discuss what will be involved in training the workforce for HOL's proposed approach (timeframes, new approaches, etc.).

d) Please comment on what training, programs, and investments will be needed if a more ambitious energy transition and EV and DER adoption scenario occurs over the next five years and beyond. In your response, please comment on what training and upgrading of workforce skills will be needed to ensure that HOL's workforce is able to meet the challenges of an accelerated energy transition in this and the next decade and how does this compare to HOL's current approach and the approach proposed in the Application.

e) Similarly, please discuss any disadvantages where a lower electrification scenario materializes.

RESPONSE(S):

Hydro Ottawa notes that the preamble is found in Exhibit 1, Tab 2, Schedule 3, p.4.

a) Please refer to Hydro Ottawa's response to interrogatory 2-ED-17 on the impacts of the growing consumer interest in EVs and associated increase in EV penetration in HOL's service territory. With regards to distribution system planning, load forecasting, productivity, and OM&A costs:

System Planning

Hydro Ottawa engaged a consultant to conduct a Decarbonization Study to examine the impact of decarbonization initiatives, including electric vehicle adoption assumptions, on Hydro Ottawa's distribution system through 2050. For details on how the decarbonization study informed Hydro Ottawa's forecast and its impact on system planning, please refer to part (a) of the response to integratory 2.5-BOMA-2. Further information is also available in Attachment 2-5-4(F) - Decarbonization Study.

Load Forecasting

For details on EV assumptions used to forecast the revenue load, please refer to section 7.2 of Schedule 3-1-1 - Revenue Load and Customer Forecast.

Productivity and OM&A

As per Section 3.2 of Schedule 4-1-1 - Operations, Maintenance, and Administration Summary, with an increase in electrification, Hydro Ottawa's OM&A costs will also increase. With increased electrification and EV penetration, Hydro Ottawa will be utilising a new CRM, as detailed in Attachment 4-1-1(A) - Transition to Cloud Computing, which will streamline EV connection requests, automate workflows, enhance customer service, improve project intake, boost agent productivity, and track performance. These investments are designed to yield productivity and operational effectiveness gains. Please see Schedule 1-3-4 - Facilitating Innovation and Continuous Improvement to see all the quantifiable productivity results spanning the achieved and expected results for Hydro Ottawa's current rate term (2021-2025) as well as planned productivity efforts for the upcoming rate period (2026-2030).

b) Please refer to Section 3.1.5 of Attachment 4-1-3(B) - Workforce Planning Strategy for an overview of how Hydro Ottawa requires an increase in specialized and operational staff with new, specialized skillsets, corresponding to the drivers and work programs outlined in Attachment 4-1-3(C) - Workforce Growth.

c) From a workforce planning perspective, Hydro Ottawa forecasts positions by work program and driver as described in Section 3 of Schedule 4-1-3 - Workforce Staffing and Compensation, and in Section 3.1.1 and 3.1.2 of Attachment 4-1-3(C) - Workforce Growth. In 2024, Hydro Ottawa added 22 positions associated with Customer Connection and Capacity Program growth, which directly includes the scope involved with EV and DER Adoption. From 2026-2030, Hydro Ottawa plans to add an additional 110 staff in Metering, Engineering & Design, and Distribution Operations. EV and DER adoption contribute to this staffing need by driving requirements for Station & Distribution Capacity Upgrades, Battery Energy Storage Systems, and the need to expand supporting roles in System Operations, Engineering, and Contractor Management & Oversight.

With regards to training, Hydro Ottawa will continue to follow the principles and approaches outlined in Section 2.2.2 and Section 4.3.2 of Attachment 4-1-3(B) - Workforce Planning Strategy. This is to ensure staff are trained in new planning, design, and project delivery tools, are aware of industry updates, and to onboard new employees while upskilling existing ones. For a specific example of Hydro Ottawa gaining expertise in Battery Energy Storage System (BESS) installation, please refer to part (f) of the response to interrogatory 2-Staff-111.

d) Hydro Ottawa has prepared a hiring and training strategy commensurate with the plan described throughout the DSP and its associated load scenario, with training and position allocations as noted in parts (b) and (c) above. If year-over-year developments require shifting focus on training, Hydro Ottawa will do so accordingly. As outlined in Section 4.3.2 of Attachment 4-1-3(B) - Workforce Planning Strategy, Hydro Ottawa takes a holistic approach to talent development that ensures employees are prepared and guided to fulfill their roles. With a variety of learning approaches, tools/technologies and resources available, Hydro Ottawa can be agile in adapting training to changing business requirements.

e) Similar to part (d) above, if Hydro Ottawa sees year-over-year developments shift in focus, the utility's approach will be adjusted accordingly.

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

1-DRC-2

EVIDENCE REFERENCE:

Exhibit 1, Tab 2, Schedule 3

Preamble:
HOL notes that it is has already started to experience and observe many of the trends associated with the energy transition in its own service territory, including installation of EV chargers by a growing number of residential and commercial customers.

QUESTION(S):

a) Please explain what steps are required and what costs are incurred for a single residential unit to install and connect an EV charger through the typical layout process. In your response, please discuss any unique challenges encountered by HOL's customers.

b) Please explain what steps are required and what costs are incurred for commercial facilities or multi-unit residential buildings to carry out the necessary upgrades to connect EV chargers. In your response, please discuss any unique challenges encountered by HOL's customers.

c) Please indicate how many of each of the following types of customer connections HOL facilitated in its service territory in 2024-2025:

(i) single residential unit EV charger connections;
(ii) commercial facility EV charger connections; and
(iii) multi-unit residential EV charger connections.

d) Please indicate how many of each of the following types of customer connections HOL anticipates in its service territory over the 2026-2030 rate period:

(i) single residential unit EV charger connections;

(ii) commercial facility EV charger connections; and

(iii) multi-unit residential EV charger connections.

e) Please provide any and all working papers, reports, and analysis conducted to support HOL's demand forecasts of expected EV penetration on its service territory.

f) Please indicate whether or not HOL has considered or will consider bidirectional, "vehicle to grid" ("V2G") flow, and if so, please provide any and all assumptions and data.

RESPONSE(S):

a) The steps required for a single residential unit to install and connect an EV Charger, via Hydro Ottawa's standard Customer Layouts process, are as follows:

1. Submit Online Request: Initiate the process through Hydro Ottawa's online portal.
2. Initial Contact & Review: Hydro Ottawa will contact the customer within five to ten business days from the submission date to discuss the request. Following this, a Customer Layout (estimate) will be provided via email after Hydro Ottawa review is complete. Note: Depending on the scope of work required (e.g., if new equipment is needed or coordination with other utilities is necessary), additional time may be required beyond the initial estimate.
3. Inspections & Authorizations: Customer to prepare for the necessary inspections and obtain connection authorizations as required (ESA Connection Authorization)
4. Appointment: Customer schedules a service appointment.
5. Energization: Energized upon successful completion of all steps.

Single residential EV connections are typically service upgrades. The Hydro Ottawa costs and scope associated with a typical service upgrade includes:

- Shared cost of transformation and secondary buss (calculated based on main switch size),
- Cost of 30 meters (100 feet) of service wire (for 400A service or less), if needed
- Additional cost if the service wire exceeds 30 meters (100 feet) for 400A service or less.

Key challenges encountered by Hydro Ottawa's customers relative to Hydro Ottawa's scope while installing and connecting an EV charger may include:

- Conductor and civil requirements - if the conductor is undersized for increased load, civil trenching and conduit installation may be necessary.
- Riser Pole Constraints (400A) - space for multiple risers can be limited on poles in urban areas, requiring additional coordination.
- Compliance requirements - all customer-owned equipment and service entrances must meet ESA/OESC standards, which may trigger additional electrician and equipment costs.
- Localized transformer capacity - while less common for single home applications, if many homes on the same distribution transformer on an area simultaneously install EV chargers, it could, in some cases, require a transformer upgrade.

In addition, known challenges that customers experience on the secondary side of demarcation point include:

- Existing home electrical service capacity - many older residential homes may have 100A or even 60A electrical service panels. Adding a Level 2 EV charger can push the home's total electrical load beyond its existing service capacity, necessitating additional service upgrade costs to 200A or more.
- Electrical panel space - even if sufficient service capacity exists, the home's main electrical panel might not have available breaker slots for the new EV charger circuit requiring a panel upgrade or sub-panel installation

b) Commercial facilities or multi-unit residential upgrades are considered non-residential EV supply Equipment (EVSE) by Hydro Ottawa encompassing both Level 2 and Level 3 charging stations.

The process for connecting non-residential EV Supply Equipment is detailed on the Hydro Ottawa website (EV Charging Connection) and is summarized as follows:

1. Submit Online Request: Initiate the process through Hydro Ottawa's online portal.
2. Preliminary Consultation: Hydro Ottawa conducts an initial review and provides an EV Preliminary Consultation Report (EVPCR).
3. Submit Connection Request: Based on the EVPCR, the customer confirms and submits a formal connection request.
4. Information Review: Hydro Ottawa reviews the submitted connection information (load summary, site plan, single line diagram, etc.).
5. Offer to Connect: Hydro Ottawa issues an Offer to Connect (OTC).
6. Project Development & Construction: The project undergoes detailed development and construction phases.
7. Energization: The EV charging station is energized and becomes operational.

The Hydro Ottawa costs and scope associated with installing and connecting a non-residential EV charger include:

- Commercial service (site-specific) components such as transformers and/or switchgear
- Civil works on private property and in the road right-of-way
- System expansion costs (if required)

A key challenge encountered by Hydro Ottawa customers relative to Hydro Ottawa's scope while installing and connecting EVSE includes:

- The possibility of limited physical space for new equipment. Non-residential EV chargers, especially high-capacity installations, often require pad-mounted transformers or new switchgear. Such equipment demands considerable private property area, which is frequently difficult to accommodate in already developed sites or Multi-Unit Residential Buildings (MURBs).

c) Historically, Hydro Ottawa categorized EV charger applications as "new service" or "upgraded service," without specific classification for EV chargers or other distinct load types. Hydro Ottawa has since modified the tracking system to accurately account for specific load types,

including EV chargers and heat pumps, among others. It is important to note that if a "new service" or "upgraded service" is not required by the customer, they are not required to notify Hydro Ottawa of the EV charger installation. As such, Hydro Ottawa does not have records of these installations and these installations are not captured in the data below.

As such, the EV Charger Connection installations that required a new or upgraded service, during the 2024 to 2025 period are as follows:

- Single Residential Unit EV Charger Connections - data for these connections remains integrated with all other residential requests, hence no accurate stand alone count can be provided.
- Commercial Facility EV Charger Connections (including multi-unit residential EV chargers) - since the implementation of the OEB's Electric Vehicle Charging Connection Procedures on May 27, 2024,[1] applicable for non-residential Level 2 and Level 3 chargers, Hydro Ottawa has received twenty (20) non-residential EV charger requests, for which Electric Vehicle Preliminary Consultation Reports (EVPCRs) were issued between the period of May 27, 2024 and April 1, 2025. These requests approximately total 9.9 MVA of requested EV charger load capacity.

d) In the 2026-2030 period Hydro Ottawa's forecast for individual types of EV charger connections please refer to Attachment 2-5-4(F) - Decarbonization Study. In addition, please refer to part (a) of the response to interrogatory 2-Staff-42 for a summary of EV assumptions used for forecasting purposes.

e) Please refer to Attachment 2-5-4(F) - Decarbonization Study, and to part (a) of the response to interrogatory 2-Staff-42 for more details.

f) Hydro Ottawa recognizes Vehicle-to-Grid (V2G) technologies as a potential future opportunity for grid optimization and sustainability. Hydro Ottawa's current focus is on implementing technologies that offer more immediate and viable solutions for short-term system needs. Hydro

[1] Ontario Energy Board's Electric Vehicle Charging Connection Procedures

Ottawa maintains an open stance toward exploring new and emerging technologies like V2G. As V2G matures and becomes more economically and technically feasible for widespread implementation, Hydro Ottawa is committed to evaluating its potential to further enhance grid resilience and enable a cleaner energy future.

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

1-DRC-3

EVIDENCE REFERENCE:

Exhibit 1, Tab 3, Schedule 1

Preamble:
HOL's rate framework provides OM&A funding in years two through five of the rate period (i.e. 2027-2030), using a custom annual adjustment known as the Custom Revenue OM&A Factor, as follows:

$$CROF = I - X + G$$

where,

- "I" is the inflation factor;
- "X" is the two-component productivity factor;
- "G" is the weighted growth factor

HOL has determined that the CROF will be 5.18%.

QUESTION(S):

a) Please outline HOL's assumptions in the two-component "X" productivity factor in the above CROF equation regarding capacity, load changes, and leveraging due to EVs and other DERs in each of years two through five.

b) Please outline HOL's assumptions in the "G" term in the above CROF equation regarding capacity, load changes, and leveraging of EVs and other DERs in each of years two through five.

c) How were each of DERs, EVs, and EV charging infrastructure treated for the purpose of setting the "I" factor at which HOL arrived? Please provide all related working papers.

RESPONSE(S):

a) Hydro Ottawa notes that the two-component "X" productivity factor in the above CROF equation is set by the Pacific Economics Group's Total Cost Benchmarking model. Hydro Ottawa has proposed two adjustments related to the use of the PEG model.

The first relates to three elements of the PEG model that Hydro Ottawa has proposed to adjust. Related to this request would be the adjustment to capture impacts of Conservation and Demand Management (CDM) on a utility's cost drivers. The resulting inclusion of historical and predicted CDM/eDSM support that Hydro Ottawa should be included in Cohort III. Please see Hydro Ottawa's responses to interrogatories 1-Staff-11 and 1-SEC-20 for more description of this inclusion.

The second is to reflect embedded stretch productivity, which includes projects related to DERs.

It should lastly be noted that the revenue load forecast that underpins the future KW and kWh includes additional load related to EVs and any offset as a result of current net metered customers. However, no additional factor has been included as a result of any anticipated future behind-the-meter generation.

b) As noted in Schedule 1-3-1 - Rate Setting Framework, the weighted growth factor "G" was developed using customer count and capacity growth. Customer count did not include stand alone generation increases. Leveraging DERs in the form of increased capacity, such as Battery Energy Storage System (BESS), have been included as part of the capacity growth calculation. Non-wires solutions, such as eDSM and customer incentive programs for behind-the-meter generation, have not been included as part of the growth calculation.

c) Hydro Ottawa has proposed to use the OEB's inflation factor that is updated annually, as such no adjustments were made as a result of DERs, EVs and EV charging infrastructure. However, base OM&A costs associated with DERs, EVs and EV charging infrastructure are included in the 2026 test year.

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

1-DRC-4

EVIDENCE REFERENCE:

Exhibit 1, Tab 4, Schedule 1

Preamble:
HOL undertook customer engagement through (i) Annual Electric Utility Customer Satisfaction Survey, delivered by UtilityPulse, (ii) National Electricity Customer Satisfaction Survey, commissioned by Electricity Canada, and delivered by Innovative Research Group, and (iii) Behind the Meter Survey, commissioned by Canadian Electricity Association (now Electricity Canada), and delivered by Innovative Research Group.

QUESTION(S):

a) Please provide a copy of all written instructions provided by HOL to UtilityPulse, Electricity Canada and/or Innovative Research Group in relation to the respective customer engagement mandate and the reports provided in Exhibit 1, Tab 4, Schedule 1, Attachments C, D, E, and F.

b) Please provide a copy of all written instructions provided by HOL to UtilityPulse, Electricity Canada and/or Innovative Research Group in relation to customer engagement with respect to consumer choice in integrating new technologies like EVs, solar power, and battery storage (including V2G).

c) Please describe all measures undertaken by HOL and UtilityPulse, Electricity Canada and Innovative Research Group to invite and ensure the participation of EV stakeholders and other DER customers (including EV drivers, owners of DERs, EV associations, and DER industry associations) in each of the customer engagement activities noted in the preamble.

d) Please provide any and all notes relating to EVs and DERs from each of the customer engagements that are supplementary to the reports provided in Exhibit 1, Tab 4, Schedule 1.

e) Please discuss how the outcomes and priorities of customers have changed compared to historical equivalents and discuss any trend lines in customer priorities related to the adoption and integration of technologies like DERs, EVs, and battery storage (including V2G).

RESPONSE(S):

a) For the surveys conducted by UtilityPulse (Schedule 1-4-1(C) 2024 Customer Satisfaction Survey - Residential and Small Commercial and Schedule 1-4-1(D) 2024 Customer Satisfaction Survey - Large Commercial), the work is performed on a proposal basis where UtilityPulse submits a proposal for the surveys, and Hydro Ottawa agrees to participate or not. However, Hydro Ottawa provides direction on supplementary questions to be included in the survey; a list of these questions can be found in Attachment 1-DRC-4(A) - Residential and Small Commercial Supplemental Questions 2024 and Attachment 1-DRC-4(B) - Large Commercial Supplemental Questions 2024.

The surveys conducted by Innovative Research, Schedule 1-4-1(E) - 2023 National Electricity Customer Satisfaction Report and Schedule 1-4-1(F) - Behind the Meter Survey, were commissioned by Electricity Canada as part of a national study. Hydro Ottawa had the option to participate through additional survey responses to obtain observations specific to its service territory. No instructions were provided by Hydro Ottawa to Innovative Research.

b) Please see Attachment 1-DRC-4(B) - Large Commercial Supplemental Questions 2024, pages 3-4, for supplementary questions included in the 2024 Large Commercial Customer Satisfaction Survey.

c) The Customer Satisfaction Surveys were conducted using a random sampling methodology of Hydro Ottawa's customer base. The Behind the Meter Survey was also conducted through

random sampling of electricity consumers (not only Hydro Ottawa account holders) within Hydro Ottawa's service territory. Based on this methodology, no specific measures were taken to invite or ensure the participation of EV or other DER stakeholders in these surveys.

d) There are no additional notes from the specified customer engagement activities relating to electric vehicles (EVs) or distributed energy resources (DERs) that are supplementary to the reports provided in Exhibit 1, Tab 4, Schedule 1.

e) Hydro Ottawa has limited direct survey data to identify trendlines related to the adoption and integration of technologies like DERs, EVs, and battery storage. The available comparative data comes from different surveys, conducted by different companies, which utilized differently worded questions about these technologies. Despite these differences, Table A below presents some rough trends identified by comparing data from the Attachment 1-4-1(F) - Behind the Meter Survey to Attachment 1-ED-7(A) - 2023 Customer Satisfaction Survey - Residential and Small Commercial.

Table A - Comparative Trends for DER and EV Adoption

Category	Source Survey	
	2021 Behind the Meter	2023 Customer Satisfaction
EV Ownership	5%	5%
EV Purchase likelihood	15% "Would definitely buy when it's time to replace existing vehicle"	19% "Very likely to buy when ready to purchase new vehicle"
Solar Ownership	6%	5%
Solar Interest	31%	34%
Battery Storage Ownership	2%	2%
Battery Storage Interest	30% "would actively take steps to acquire this / would be very interested in learning more"	34% "are very/somewhat interested"

Hydro Ottawa intends to repeat the 2023 Customer Satisfaction Survey questions related to these technologies in the 2025 Customer Satisfaction Survey, to have better trending data.

For the Large Commercial customer segment, surveys conducted in both 2022 and 2024 included repeated questions that provided the following comparative data points D. Please reference page 43 of Attachment 1-ED-7(B) - 2024 Customer Satisfaction Study results - Large Commercial. Table B below summarizes the results, showing the percentage of respondents who would "definitely" or "probably" consider:

Table B - Comparative Trends, Large Commercial

Category	Source Survey	
	2022	2024
Installing battery storage for backup during an outage	52%	59%
Installing battery storage to reduce peak demand	47%	46%
Electrifying space heating	47%	55%
Electrifying company owned vehicles	42%	51%
Installing renewable generation (e.g. solar panels) on site	48%	47%

OTTAWA SUPPLEMENTAL QUESTIONS

OUTAGE COMMUNICATIONS

C3a. When a **planned outage** occurs for things such as construction, maintenance, or repair, which of the following would be your preferred method for [INSERT LDC] to use to give you information about the planned outage? [READ LIST AND SELECT ALL THAT APPLY]

[RANDOMIZE]

1. Recorded telephone message alert
2. A toll-free or call-in outage line
3. Email alert/notice
4. Email invite that syncs to your calendar with the outage duration
5. Outage map on the [INSERT LDC] website
6. Social media alert on X formerly Twitter, Instagram, Facebook, etc.
7. Text message alert
8. Mobile app alert
9. Outage map on mobile app
10. Hand delivered notice
11. Other (please specify) [ANCHOR]
12. Don't recall / Don't know [DO NOT READ] [ANCHOR] [EXCLUSIVE]
13. Refused [DO NOT READ] [ANCHOR] [EXCLUSIVE]

C3b. When an **unplanned outage** occurs, which of the following would be your preferred method for [INSERT LDC] to use to give you information about the outage? [READ LIST AND SELECT ALL THAT APPLY]

[RANDOMIZE]

1. A toll-free or call-in outage line
2. Email alert/notice
3. Email invite that syncs to your calendar with the outage duration
4. Outage map on the [INSERT LDC] website
5. Social media alert on X formerly Twitter, Instagram, Facebook, etc.
6. Text message alert
7. Mobile app alert
8. Outage map on mobile app
9. Other (please specify) [ANCHOR]
10. Don't recall / Don't know [DO NOT READ] [ANCHOR] [EXCLUSIVE]
11. Refused [DO NOT READ] [ANCHOR] [EXCLUSIVE]

OT1. Hydro Ottawa has recently made some enhancements to its outage map, available on the Hydro Ottawa website and mobile app.

Were you aware of these changes before today?

1. Yes
2. No
3. Don't know / Refused [DO NOT READ]

ASK IF AWARE AT OT1

OT2. Have you accessed the new outage map on the Hydro Ottawa website or mobile app? DO NOT READ AND SELECT ALL THAT APPLY

1. Yes – on the Hydro Ottawa website
2. Yes – on the Hydro Ottawa mobile app
3. No
4. Don't know / Refused [DO NOT READ]

ASK IF USED AT OT2

OT3. How **satisfied** are you with each of the following outage map features on the Hydro Ottawa website? How about… [READ GRID DOWN OPTION] Are you… [READ GRID ACROSS LIST]

GRID ACROSS

1. Extremely satisfied
2. Very satisfied
3. Somewhat satisfied
4. Not very satisfied
5. Not at all satisfied
6. Did not see / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

GRID DOWN [RANDOMIZE]

1. Address search feature that zooms to the area entered
2. Bookmark feature that allows users to nickname and store multiple locations such as 'home' or 'work' (saved locations can be edited or deleted at any time)
3. The ability to view the map by location, city ward or by neighborhood across Hydro Ottawa's service territory
4. The ability to toggle the map view by road view, satellite view or a hybrid of both
5. Outage icons displayed over the outage areas identifying the volume of customers affected for various thresholds (these icons will also dictate the outage polygon colours)
6. A wrench outage icon displayed for planned outages
7. Outage cluster icons displayed when zoomed out to cluster together the total number of customers affected over a larger area (as you zoom in to the map, the outage clusters break apart to display individual outage locations and impacted customers)
8. Overview Panel to view the outage summaries by city ward, neighborhood or across Hydro Ottawa's service territory
9. Display outages impacting less than 10 customers
10. Identified cause of outages (if known)
11. Outages will specify the number of customers affected, the estimated time of restoration, and crew status

ASK ALL

OT4. The Outage Map on the Hydro Ottawa website has the following features. If you were to use the Outage Map, how important are each of the following to you personally? How about… [READ GRID DOWN OPTION] Is it… [READ GRID ACROSS LIST]

GRID ACROSS

1. Extremely important
2. Very important
3. Somewhat important
4. Not very important
5. Not at all important

6. Not sure / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

GRID DOWN [RANDOMIZE]
INSERT LIST FROM PREVIOUS QUESTION

OT5. Hydro Ottawa has recently launched SMS/text and email **outage alerts** (both planned and unplanned).

Were you aware of these changes before today?

1. Yes
2. No
3. Don't know / Refused [DO NOT READ]

OT6. Have you received any outage alerts in the past 6 months? These may have come by SMS/text or email depending on your preferences.

1. Yes
2. No
3. Don't know / Refused [DO NOT READ]

ASK ALL
OT7. Outage alerts from Hydro Ottawa currently include or could include the following features. How important are each of the following to you personally? How about… [READ GRID DOWN OPTION] Is it… [READ GRID ACROSS LIST]

GRID ACROSS
1. Extremely important
2. Very important
3. Somewhat important
4. Not very important
5. Not at all important
6. Not sure / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

GRID DOWN [RANDOMIZE]
1. All customers with an Active MyAccount Profile are automatically enrolled to receive unplanned outage alerts
2. Customers can add up to two mobile phone numbers and five email addresses to their account so numerous members of their household can stay informed about unplanned and planned outages in progress in their area
3. By default, customers will have a predetermined 'Do not disturb' setting, where they will not receive outage alerts between 10:00 p.m. and 6:00 a.m. (if customers would like to adjust these times and receive alerts during this period, they can do so by managing their outage alert preferences)
4. Customers will receive timely information from Hydro Ottawa regarding active unplanned outages in their area
5. Customers will receive timely information from Hydro Ottawa regarding active planned outages in their area
6. Customers will receive timely information from Hydro Ottawa regarding estimated times of restoration

7. Customers will receive timely information from Hydro Ottawa regarding restoration status updates
8. Customers will receive timely information from Hydro Ottawa regarding confirmation of power restoration
9. Customers will receive SMS/text alerts from PWROUT (797688) and this will include an initial alert, followed by an update notification if timing has changed, and an alert advising when power has been restored
10. Customers will have the ability to report an outage via text/SMS ("text OUT")

OT8. Hydro Ottawa has recently made some enhancements to its **outage reporting** including allowing both customers and non-customers the ability to report an outage anywhere within Hydro Ottawa's service territory, as long as they have a MyAccount profile. All they need is a valid email address to register for a MyAccount profile, either online or through the Hydro Ottawa mobile app.

Were you aware of these changes before today?

1. Yes
2. No
3. Don't know / Refused [DO NOT READ]

OT9. Have you personally made any outage reports in the past 6 months?

1. Yes
2. No
3. Don't know / Refused [DO NOT READ]

ASK ALL

OT10. Again, outage reports to Hydro Ottawa now allow both customers and non-customers the ability to report an outage anywhere within Hydro Ottawa's service territory, as long as they have a MyAccount profile. All they need is a valid email address to register for a MyAccount profile, either online or through the Hydro Ottawa mobile app.

Non-customers who may benefit from this new feature, include:

- Household members who are not the account holder
- Tenants whose landlord is responsible for the Hydro Ottawa account
- Landlords or property managers whose tenants are responsible for the Hydro Ottawa account
- Employees of a business who may not be the primary contact for the Hydro Ottawa account
- Existing customers will have the ability to report an outage for a premise other than the one associated with their Hydro Ottawa account

How important are each of the following to you personally? How about… [READ GRID DOWN OPTION] Is it… [READ GRID ACROSS LIST]

GRID ACROSS

1. Extremely important
2. Very important
3. Somewhat important
4. Not very important

5. Not at all important
6. Not sure / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

GRID DOWN [RANDOMIZE]

1. Ability of customers to report an outage for an address not associated with their account(s)
2. Ability of non-customers to report an outage online through the MyAccount portal or Hydro Ottawa mobile app (they just need a valid email address to sign up)

SAFETY MEASURE KNOWLEDGE & PREPARATION

T7. When it comes to safety measures during power outages, how **familiar** are you with each of the following? How about… [READ GRID DOWN OPTION] Are you… [READ GRID ACROSS LIST]

GRID ACROSS

1. Extremely familiar
2. Very familiar
3. Somewhat familiar
4. Not very familiar
5. Not at all familiar
6. Don't recall / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

GRID DOWN [RANDOMIZE]

1. Preparing a basic 72-hour emergency kit before an outage occurs
2. Stopping at intersections when traffic lights are out
3. Safety steps to take around a downed power line
4. Safety steps to take when operating a generator
5. Spoilage rules for perishable food items kept in refrigerators / freezers during outages
6. Dealing with water in the basement
7. Having either a land line phone or the capability to charge cell phones during power outages in order to call emergency services if needed
8. How to report a safety hazard like a downed power line, tree on a power line
9. Having a back-up for your sump pump in case of outages

T8. How **prepared** do you feel that your household is if the following types of power outages occur? How about… [READ GRID DOWN OPTION] Are you… [READ GRID ACROSS LIST]

GRID ACROSS

1. Extremely prepared
2. Very prepared
3. Somewhat prepared
4. Not very prepared
5. Not at all prepared
6. Don't recall / Don't know [DO NOT READ] [ANCHOR] [EXCLUSIVE]
7. Refused [DO NOT READ] [ANCHOR] [EXCLUSIVE]

GRID DOWN [RANDOMIZE]

1. A short power outage (i.e., less than 4 hours)
2. An extended power outage (i.e., 4 hours or longer)

3. A very extended power outage (i.e., over 72 hours)

OTTAWA LARGE COMM SUPPLEMENTAL QUESTIONS

PRIORITY PLANNING

P1. [INSERT LDC] is committed to keeping costs low. As you look toward the next 5 years, what **priority level** would you give to each of the following items? Would you say it is a [READ GRID ACROSS]. What about…[READ GRID DOWN]?

GRID ACROSS

1. A very high priority
2. A high priority
3. Neither a high nor a low priority [DO NOT READ]
4. A low priority
5. A very low priority
6. Don't recall / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

GRID DOWN [RANDOMIZE]

1. Investing more in the electricity grid to reduce outages
2. Maintaining and upgrading equipment to ensure a safe and reliable electricity supply
3. Providing sponsorships to local community causes
4. Increasing the use of social media (such as X formerly known as Twitter, Facebook, and others)
5. Providing more self-serve services on the website
6. Providing education on energy conservation and decarbonization
7. Reducing response times to outages
8. Investing more in vegetation management (clearing trees and brush around powerlines for increased safety and reliability)
9. Educating the public as it relates to electricity safety
10. Investing in projects to reduce the environmental impact of [INSERT LDC]'s operations
11. Investing to ensure that more frequent and severe weather events will cause less damage to the distribution system
12. Preventing data breaches and system disruptions due to cyberattacks
13. Burying overhead wires
14. Providing expertise to business customers regarding changes in energy technology
15. Engaging with businesses on a more frequent basis
16. Coordinating infrastructure planning with business customers
17. Offering more electricity-related programs, product, and services that reduce energy consumption and/or greenhouse gas emissions

NET-ZERO

NZ1. Many organizations, various levels of government, and others, are committing to reduce their greenhouse gas emissions to lessen the impacts of climate change. Some are even making "Net-Zero" commitments, which means the amount of greenhouse gasses emitted into the atmosphere is balanced by the amount removed from the atmosphere.

Prior to this interview, how familiar were you with a NetZero commitment? Would you say you were…[READ LIST]

1. Extremely familiar
2. Very familiar

3. Somewhat familiar
4. Not very familiar
5. Not at all familiar
6. Don't recall / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

ASK IF CODES 1-3 AT PREVIOUS QUESTION

NZ2. Does your organisation have a net-zero commitment, or is planning to make a net-zero commitment in the next year?

1. Currently have a net-zero commitment
2. Do not currently, but will make a net-zero commitment in the next year
3. Do not currently and will not make a net-zero commitment in the next year
4. Don't recall / Don't know [DO NOT READ]
5. Refused [DO NOT READ]

NZ3. What **barriers or challenges**, if any, are you facing that are preventing you (or making it harder) from taking steps to reduce carbon emissions? [READ LIST AND SELECT ALL THAT APPLY]

[RANDOMIZE]

1. Don't see this as important
2. Lack of knowledge or information (i.e: regarding overall approach or where to start)
3. Lack of expertise (internal or consultants) to design and select the best equipment
4. High capital cost of equipment
5. High operating cost (i.e., cost of electricity)
6. Availability of equipment due to supply chain issues
7. Uncertainty about regulations or standards
8. Don't plan on owning the asset for long enough
9. Other (please specify) [ANCHOR]
10. No barriers/challenges [DO NOT READ] [ANCHOR] [EXCLUSIVE]
11. Don't recall / Don't know [DO NOT READ] [ANCHOR] [EXCLUSIVE]
12. Refused [DO NOT READ] [ANCHOR] [EXCLUSIVE]

NZ4. What could Hydro Ottawa offer to encourage more actions toward net-zero? [READ LIST AND SELECT ALL THAT APPLY]

[RANDOMIZE]

1. Free expert advice and education on how to reduce emissions
2. Ability to purchase equipment (e.g: EV chargers)
3. Access to low-interest financing and/or on-bill financing
4. Incentives for equipment purchases and projects
5. Advocating for beneficial changes to regulation and policies
6. Other (please specify) [ANCHOR]
7. No barriers/challenges [DO NOT READ] [ANCHOR] [EXCLUSIVE]
8. Don't recall / Don't know [DO NOT READ] [ANCHOR] [EXCLUSIVE]
9. Refused [DO NOT READ] [ANCHOR] [EXCLUSIVE]

ELECTRIC VEHICLES / GREEN

CH1. Does your organization currently have any electric vehicle charging stations? [IF YES – PROBE FOR HOW MANY]

1. None
2. 1
3. 2
4. 3
5. 4
6. 5+
7. Don't recall / Don't know [DO NOT READ]
8. Refused [DO NOT READ]

CH2. How likely is your organization to **consider installing** any electric vehicle charging stations in the **next 12 months**? Would you… [READ LIST]?

1. Definitely will consider
2. Probably will consider
3. Might or might not consider [DO NOT READ]
4. Probably will not consider
5. Definitely will not consider
6. Don't recall / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

ASK IF CODES 1-3 AT EV CHARGING STATION QUESTION

CH3. Approximately how many electric vehicle charging stations will your organization be installing in the next 12 months?

1. None
2. 1
3. 2
4. 3
5. 4
6. 5+
7. Don't recall / Don't know [DO NOT READ]
8. Refused [DO NOT READ]

CH4. [Are/Will] your organization's charging stations [be] used for company and/or public use?

1. For company use only
2. For public use
3. For both company and public use
4. Don't recall / Don't know [DO NOT READ]
5. Refused [DO NOT READ]

O1. Please rate your willingness to allow Hydro Ottawa to run grid smart events reducing or shifting your electricity usage for each of the following in return for a financial incentive. How about…

GRID ACROSS

1. Extremely willing

2. Very willing
3. Somewhat willing
4. Not very willing
5. Not at all willing

GRID DOWN

1. When electric vehicles can be charged if it helps to reduce the cost of expanding the electricity system
2. When electric vehicles can be charged if it helps reduce greenhouse gas emissions
3. When electric vehicles can be charged if it helps to reduce your organization's electricity costs during peak times
4. When your heating/cooling system can run if it helps to reduce the cost of expanding the electricity system
5. When your heating/cooling system can run if it helps reduce greenhouse gas emissions
6. When your heating/cooling system can run if it helps to reduce your organization's electricity costs during peak times

SECTION X

X1. When it comes to **managing and reducing energy usage and greenhouse gas emissions in and around your workplace** in general, how likely are you to consider each of the following in the next 2 years? How about…[READ GRID DOWN] Are you…[READ GRID ACROSS]?

GRID ACROSS

1. Definitely will consider
2. Probably will consider
3. Might or might not consider [DO NOT READ]
4. Probably will not consider
5. Definitely will not consider
6. Don't recall / Don't know [DO NOT READ]
7. Refused [DO NOT READ]

GRID DOWN [RANDOMIZE]

1. Retrofitting your business for better energy efficiency
2. Installing building automation to manage energy consumption
3. Installing renewable generation (e.g. solar panels) on your site
4. Installing battery storage to reduce your peak demand
5. Installing battery storage for backup during an outage
6. Installing battery storage to participate in various programs and markets (e.g: energy arbitrage)
7. Electrifying company owned vehicles
8. Electrifying space and/or water heating

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

2-DRC-5

EVIDENCE REFERENCE:

Exhibit 2, Tab 5, Schedule 1

Preamble:
HOL notes that the "increasing adoption of electric vehicles represents a substantial load growth factor, with the electrical demands of EV charging, particularly when concentrated and simultaneous, requiring robust grid reinforcement, especially around public charging facilities."
In HOL's 2021 rates application HOL estimated that, based on provincial EV per capita rates, Ottawa will have 2,959 EVs, as of 2018. By the end of 2019, this number was projected to rise to 4,832, a 63% increase. By 2039, the number of EVs within Ottawa was forecasted to grow to 511,332 and EVs will make up 66% of all light vehicles in Ottawa if trends continue.

QUESTION(S):

a) Please update the above analysis based on any and all new information reasonably available to HOL and provide the most recent estimate of the number of EVs within the HOL service territory. If an update is available, please indicate whether it alters the 2039 forecast of the number of EVs in Ottawa and the share of light vehicles that are expected to be EVs.

b) Please confirm whether HOL's current EV adoption forecast explicitly incorporates the federal ZEV sales mandate and its 2026/2030/2035 interim targets. If not, please explain why the forecast does not reflect this federal policy, and whether HOL intends to update its assumptions.

c) Please provide HOL's forecasted annual EV sales as a

percentage of new vehicle sales in its service area in 2026, 2030, and 2035. Please compare those projected shares to the federal ZEV sales targets and comment on any differences.

d) Please confirm whether HOL considered multiple EV adoption scenarios (e.g., high/medium/low cases) in preparing its forecast. If yes, please provide a summary of each scenario, the adoption levels assumed, and the associated system impacts. If not, please explain why scenario analysis was not considered appropriate or necessary.

e) Has HOL undertaken any benchmarking or comparative analysis of its EV adoption and load forecasts against those of other Ontario LDCs? If not, please explain why HOL did not undertake such benchmarking. If yes, please provide a summary of the results of any such benchmarking, including a comparison of:

(i) Projected EV penetration rates (as a % of customers or vehicles),
(ii) Projected EV-related annual load (kWh),
(iii) Load growth attributable to EVs over the test period (2026 and beyond).

f) Please indicate how many (and where applicable the number of MW) of each of the following types of customer connections HOL's facilitated in HOL's service territory over the rate period:

(i) single residential unit EV charger connections;
(ii) commercial facility EV charger connections;
(iii) condo EV charger connections; and
(iv) renewable energy and back up generation, including the type of facility (solar roof top, solar thermal, wind, energy storage) and the customer breakdown for such facilities (residential, general service, commercial/industrial, and/or large industrial).

g) Please indicate how many of each of the following types of customer connections HOL anticipates in its service territory over the 2026-2030 rate setting period:

(i) single residential unit EV charger connections;
(ii) commercial facility EV charger connections
(iii) condo EV charger connections; and
(iv) renewable energy and back up generation, including the type of facility (solar roof

top, solar thermal, wind, energy storage) and the customer breakdown for such facilities (residential, general service, commercial/industrial, and/or large industrial).

h) Have any HOL customers been prevented from or delayed in installing EV charges as a result of capacity constrains in HOL's distribution system? If so, how many customers have been prevented or delayed and for how long?

RESPONSE(S):

a) Hydro Ottawa's EV assumptions in the 2021 - 2025 Rate Application followed a different methodology. For the current rate application, Hydro Ottawa hired a consultant to fine tune the EV assumptions based on existing government policies. More details on this can be found in Attachment 2-5-4(F) - Decarbonization Study; for a summary of the assumptions, please refer to part (a) of Hydro Ottawa's response to interrogatory 2-Staff-42.

b) Hydro Ottawa's current EV adoption forecast incorporates Canada's Zero-Emission Vehicle sales targets. For more details please refer to Attachment 2-5-4(F) - Decarbonization Study.

c) Hydro Ottawa's Decarbonization Study utilized a multiple scenario approach to capture varied paces of electric vehicle adoption. For more details please refer to Attachment 2-5-4(F) - Decarbonization Study and for a summary of the assumptions please refer to part (a) of Hydro Ottawa's response to interrogatory 2-Staff-42.

d) Please refer to response c) above.

e) Although a comparative analysis of EV adoption and load forecasts against other Ontario LDCs was not conducted, as part of formalizing Hydro Ottawa's EV assumptions used in the Decarbonization Study, several studies carried out by industry stakeholders such as BC Hydro, Dunsky, NRCan, etc were referenced. More details can be found in Section 5 of Attachment 2-5-4(F) - Decarbonization Study.

f) For EV charger connections in the 2021-2025 rate period, please refer to part c) of Hydro Ottawa's response to interrogatory 1-DRC-2, and for renewable energy or Distributed Energy Resources (DERs) please refer to Section 9.3.1 of Schedule 2-5-4 - Asset Management Process.

g) For forecasted EV charger connections in 2026 - 2030 please refer to part d) of Hydro Ottawa's response to interrogatory 1-DRC-2, and for renewable energy forecasts please refer to Section 9.3.2 of Schedule 2-5-4 - Asset Management Process.

h) Hydro Ottawa has not prevented or delayed any customers from installing EV chargers due to capacity constraints in the distribution system.

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

2-DRC-6

EVIDENCE REFERENCE:

Exhibit 2, Tab 5, Schedule 1

Preamble:
HOL's investment priorities for is DSP include: Growth & Electrification: Powering a Growing Community; Renewing Deteriorating Infrastructure; Grid Modernization: Enabling the Energy Transition; and Enhancing Resilience.

QUESTION(S):

a) Please provide details as to the areas in HOL's service territory that experience the highest reliability and safety risks associated with EV adoption and DER connections (such as neighbourhood, number of DERs connected, overview of risks and reliability issues, customer concerns, etc.). If HOL is unable to provide further details, please explain why not and whether such information may be obtained in this proceeding or subsequent proceedings.

b) What are the consequences if EV growth rates exceed HOL's forecasts? Please include in your response a discussion on what challenges this will present in terms of HOL's ability to meet the higher demand and any consequences it may have on HOL's ability to meet demand past 2030 if demand continues to accelerate more quickly than anticipated.

c) Please discuss the disadvantages and downside risks to HOL's distribution system, customers, investments in EVs and DERs, infrastructure, and/or workforce of underinvesting in EV infrastructure and DER connection and adoption infrastructure if a higher electrification scenario materializes compared to the one relied upon in the Application. Please also discuss the

implications of underinvestment over the rate period (2026-2030), mid-term (2030-2040), and long-term (2040 onwards).

d) Similarly, please discuss any disadvantages where a lower electrification scenario materializes.

e) Please comment on known barriers to EV adoption in HOL's service territory, including for multi-unit rental residential, and how the Application seeks to address these barriers and ensure equitable access to charging infrastructure for all customers.

f) Does HOL have any programs to support the upgrading of supply infrastructure to enable EV charging infrastructure when HOL is planning expansion or upgrades? If yes, please provide details. If no, please discuss what types of programs could be developed to support proactive and future infrastructure upgrades to enable equitable access to EV charging infrastructure for all customers.

g) Please provide HOL's views on any barriers to EV adoption for residents of multi-unit complexes in HOL's service area. Among any other views, please provide specific comment on whether multi-unit residential complexes represent one of the more challenging venues for EV adoption, and whether HOL agrees that addressing those challenges should be prioritized. Please explain HOL's position on each of these points.

h) Please describe any ongoing activities or initiatives proposed by HOL that can help to address challenges specific to EV transition in multi-unit residences by way of proactive infrastructure upgrades or future upgrades. Please include any planned or anticipated initiatives at the system-wide level in addition to any more localized initiatives.

RESPONSE(S):

a) Hydro Ottawa emphasizes that it does not anticipate reliability and safety risks associated with EV adoption and DER connections to a degree that would necessitate denying connections. However, the utility acknowledges that certain areas within its service territory are

capacity-constrained. Specific details regarding these capacity-constrained regions are provided in Sections 8.4 and 9.3.3 of Schedule 2-5-4 - Asset Management Process.

Hydro Ottawa's 2026-2030 rate application includes proposals for capacity upgrades specifically designed to address these identified immediate system needs in the constrained areas, as described in Section 9.1 and Section 9.3.4 of Schedule 2-5-4 - Asset Management Process. These investments aim to bolster the grid's ability to handle the increasing demand from electrification.

Hydro Ottawa also provides customers with a list of short-circuit constrained feeders on its website, accessible through the "DER connection process & application forms | Hydro Ottawa" section. These feeders have limitations for DER connections due to short-circuit capacity concerns. While direct connections might be restricted on these specific feeders, Hydro Ottawa has not denied connections outright and instead offers alternative connection options to customers. This indicates a proactive approach to managing potential grid impacts without halting new connections. Refer to part (b) of the response to interrogatory 2-ED-10 for an update on the plans for the restricted feeders.

To further assist customers and developers, and as required by the OEB, Hydro Ottawa also provides an "Electricity load capacity map | Hydro Ottawa" on its website. This map serves as a useful planning tool for identifying areas with available load capacity for new loads, including EV charger installations.

b) Hydro Ottawa utilized a multi-scenario forecasting approach to capture different paces of EV adoptions as detailed in Attachment 2-5-4(F) - Decarbonization Study. Additionally, Hydro Ottawa's proposed capacity-related investments were based on immediate system needs driven by capacity constraints and committed load requirements. In addition, the Reference Scenario from the Decarbonization Study served to align the investment decisions related to mid to long term forecasted system capacity, facilitating efficient capital deployment and optimized asset utilization. This strategy, as outlined in sections 9.1 and 9.4 of Schedule 2-5-4 - Asset Management Process, is designed to proactively address immediate capacity constraints while

keeping the system ready to enable electrification. Hydro Ottawa will continuously monitor the impact of electrification to minimize disruptions and ensure the ability to connect new customers.

c) As mentioned in response (b) above, the Reference Scenario from the decarbonization study was used to align investment decisions related to mid to long term forecasted system capacity for efficient capital deployment and optimized asset utilization. Since the high electrification/ High Sensitivity scenario from the Decarbonization study was not used in the capacity assessment, as such Hydro Ottawa is unable to comment on its impacts. However, Hydro Ottawa does not anticipate any significant disadvantages where a higher electrification scenario materializes as a result of the capacity-related investment strategy noted in response (b) above. Hydro Ottawa also recognizes that underinvestment in EV and DER infrastructure could present challenges across the distribution system, both for customers, and for the broader community as outlined below.

Distribution System and Infrastructure: Underinvestment could lead to strain on the distribution system, particularly in capacity-constrained regions. This could lead to grid instability, accelerated degradation of existing infrastructure, and the need for disruptive unplanned upgrades.

Customers: Customers would likely experience delays in connections, including connecting new EVs and DERs. In some areas, this could lead to connection moratoriums, directly impacting their ability to adopt new technologies. The overall reliability of the grid could also be compromised, leading to service disruptions.

Investments in EVs and DERs: Without adequate enabling infrastructure, the benefits of investments in EVs and DERs would not be fully realized. Customers would face barriers to adoption, potentially slowing the transition to a clean energy future.

Workforce: A reactive approach would put a strain on the workforce, forcing a shift to emergency repairs and unplanned projects instead of strategic, long-term initiatives.

Potential implications of underinvestment for the requested periods are as follows:

Rate Period (2026-2030): The immediate impact would be felt in capacity-constrained regions, where grid instability and customer connection delays would become a reality. This would require reactive, expensive replacements, upgrades and repairs and could lead to temporary moratoriums on new connections in certain areas.

Mid-term (2030-2040): The situation would escalate, potentially damaging Hydro Ottawa's reputation and creating a significant bottleneck for economic development. The costly retrofitting of an inadequate system would be far more expensive than the planned, proactive investments.

Long-term (2040 onwards): Hydro Ottawa would be left with an outdated and unreliable grid, unable to meet the demands of an electrified society. This would place a financial burden on customers and could jeopardize the province's broader climate and energy goals by making the distribution grid the primary obstacle to a clean energy future.

d) Hydro Ottawa does not anticipate any significant disadvantages where a lower electrification scenario materializes as a result of the capacity-related investment strategy noted in response b) above. Hydro Ottawa will continue to monitor the realization of electrification load and will adjust system forecasts and investment plans beyond 2030 to align with a lower electrification scenario if required.

e) Hydro Ottawa expects that barriers to EV adoption in its service territory would be similar to barriers identified across society more broadly. As per Attachment 1-4-1(F) - Hydro Ottawa Behind the Meter Survey, numerous barriers have been identified by customers for EV adoption including cost, charging infrastructure and range concerns; however, multi-unit residential barriers were not specifically identified by customers in the survey. With respect to multi-unit residential rental barriers in general, Hydro Ottawa helped customers install EV charging stations in multi-unit residential buildings through the Zero Emission Vehicle Infrastructure Program (ZEVIP). Please refer to Section 2.4.4 of Schedule 1-4-1 - Customer Engagement Ongoing for more information.

f) As per Section 2.3.1 of Schedule 2-5-1 - Distribution System Plan Overview, Hydro Ottawa collaborates with developers and the City of Ottawa through various working groups, including the Utility Coordinating Committee, Energy Evolution, and the Decarbonization Working Group to develop well-informed grid capacity enhancement plans including the enablement of EV charging infrastructure. As outlined in Schedule 2-5-5 - Capital Expenditure Plan, Hydro Ottawa's System Expansion Program strategically upgrades infrastructure like feeders, transformers, and substations to accommodate increased demand including EV charging. As noted above, Hydro Ottawa also provides customers with an electricity load capacity map on the website that is a useful planning tool for new loads such as EV chargers.

g) As noted in part e) above, Hydro Ottawa expects that residents of multi-unit residential buildings would face the same barriers to EV adoption that are common across society, with the added challenge of more difficult considerations for personal EV charging, depending on the infrastructure available in their building. As further detailed in part (a) of the response to interrogatory 2-ED-17, many older multi-unit residential buildings may not have been designed with the electrical capacity to support a significant number of EV chargers. While residents of multi-unit residential buildings must work with the owner and/or manager of their specific building on options and strategies for EV charging, Hydro Ottawa is committed to working with mulit-unit residential building owners to complete any necessary service upgrades should they choose to implement EV charging solutions that require capacity upgrades. Part (f) of the response to interrogatory 2-ED-17 expands on this further. Finally, Hydro Ottawa's pursuit of, and distribution of funds to support EV Charger installations under NRCan's Zero Emissions Vehicle Infrastructure Program (ZEVIP) show its commitment to supporting broader access to EV charging, including for those living in multi-unit residential buildings. See Section 2.4.4 of Schedule 1-4-1 - Customer Engagement Ongoing for more information.

h) As noted in parts (e) and (f) above, Hydro Ottawa is committed to supporting EV charger installations, including those in multi-unit residential buildings, as demonstrated by its delivery of the Zero Emission Vehicle Infrastructure Program (ZEVIP). Please refer to Section 2.4.4 of Schedule 1-4-1 - Customer Engagement Ongoing for more information.

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

2-DRC-7

EVIDENCE REFERENCE:

Exhibit 2, Tab 5, Schedule 4

Preamble:
HOL's proposed EV Everywhere ("EVE") pilot project "forecasts the impacts of [EV] charging on the distribution system at the transformer level, and uses artificial intelligence (AI) solutions to optimize EV charging during periods of peak demand." HOL notes that the aim of the pilot project includes "testing how the technology can help address localized system needs as EV adoption increases." HOL notes that "[l]essons learned from the EV Everywhere BESS portion are intended to support standards creation, selection considerations for BESS units (such as siting, MW and MWh capacity, and battery and energy management system features), BESS Integration (use impact assessment, data value, information visibility to stakeholders), strategic application, and maintenance."

QUESTION(S):

a) Please provide a copy of all written instructions provided by HOL to BluWave-ai in relation to its partnership and mandate for the EVE project.

b) Please provide any and all working papers, reports, and analysis conducted on or in support of the EVE project.

c) Please explain how the BESS units will interact with the AI-optimized charging strategy (e.g., peak-shaving, transformer deferral, V2G/V2H support).

d) Please describe the criteria HOL will use to determine whether the pilot should transition to broader deployment (e.g., performance thresholds, payback targets, customer-adoption thresholds).

e) Please identify any technical, regulatory, or commercial barriers HOL foresees in scaling AI-optimized EV charging or localized BESS to its full service territory.

f) Please provide the anticipated number and type of customers (residential, commercial fleet, municipal fleet) that will participate in the pilot.

RESPONSE(S):

Hydro Ottawa notes that the preamble also pulls information from Section 2.2 of Schedule 1-3-4 - Facilitating Innovation and Continuous Improvement.

a) Hydro Ottawa is not the project lead and does not provide direction to BluWave-ai on this project The EV Everywhere project is a Grid Innovation Fund (GIF) project between IESO and BluWave-ai, with Hydro Ottawa being a participant. The GIF contribution agreement is between BluWave-ai and the IESO. BluWave-ai and Hydro Ottawa executed a Participation Agreement to formalize Hydro Ottawa's responsibilities within the contribution agreement between the IESO and BluWave-ai.

b) The formal reporting and analysis to IESO under the GIF is proprietary to BluWave-ai and thus, Hydro Ottawa is unable to provide it. Milestone reports and analysis are filed with the IESO by BluWave-ai. Refer to Hydro Ottawa's EV Everywhere web page[1] for details as to Hydro Ottawa's participation, which includes a video. Please also see Attachment 2-DRC-7(A) - EVE HOL Internal Status Update - April 2025 for the latest internal stakeholder update.

[1] https://hydroottawa.com/en/save-energy/save-energy-homes/ev-everywhere

c) The BESS units will respond to intelligent dispatching commands for charging or discharging into the grid. The connected capacity of each BESS can be throttled up to its 40kW rating, sufficiently representing or simulating a cluster of EVs injecting into the grid, and the results can be scalable as a proxy to larger BESS operating as a utility asset. The intelligent operation of the BESS would support local asset thermal or power quality constraints.

d) The EV Everywhere project will not transition to broader deployment and instead, lessons learned have and will continue to inform other work, including the ODERA project. Refer to part (e) of the response to interrogatory 2-Staff-69 for additional detail.

e) Preliminary lessons learned have identified the following barriers:

- Without standardization on grid supporting appliances/devices, the original equipment manufacturers (OEMs) have inconsistent protocols, approaches and policies around the use of their products for demand response, even amongst different models. Frequent software or firmware updates of their products can also make it difficult for demand response platform providers to provide consistent expectations from these resources;
- Demand response platform providers have different approaches to managing flexible loads and DER assets and they are evolving their platforms as utilities and OEMs are evolving their needs and interfaces, which remains in an early stage.
- When selecting a BESS there are many technical considerations for communications capabilities, cybersecurity, and data values that need to be vetted prior to procurement (for example, the capabilities of the power conversion system or inverter).
- Siting of BESS units can be a challenge given their size, chemistry and environmental needs. Pre-planning and securing sites, as is done for shared vaults, would help.

f) For EV Everywhere, the participants are all residential customers. The pilot's original target was enrollment of 50 Hydro Ottawa customers. Current enrollment (as of July 25th, 2025) is 191 participants.

DER Pilot

On Track | Monitor | Act

Project Overview:

Testing of EV and BESS DER management as a NWS using AI.

Metric	Status	Comments
Budget		Under budget, and tracking well.
Schedule		Anticipating BESS in-service by middle/end of April.
Scope		On track; no adjustment expected. (changed from yellow)
Risk		Need to persist on scheduled tasks.

Major Issues, Risks, Decisions, or Wins

WIN: two BESSes 90% installation at both Area X.O and Dibblee.

Next steps: (1) finishing installation; (2) finishing commissioning; (3) installation of the Energy Management System (EMS); (4) completion and installation of the HOL communications, monitoring and control box; (5) logistics (installation of fire extinguisher, maintenance sign-off sheet, training); (6) completion of the summer and winter testing regime for the IESO project.

RISKS: missing winter/summer testing due to either (1) unsuccessful certification - coordination or technical - for SPE-1000 or ESA; (2) ESA Plan Review delays; (3) lack of results reporting on DR campaign [reduced from four (4) risks, added #3]

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

2-DRC-8

EVIDENCE REFERENCE:

Exhibit 2, Tab 5, Schedule 8

Preamble:
HOL's proposed Ottawa DER Accelerator ("ODERA") project "will utilize predictive analytics and advanced integration of customer-owned distributed energy resources (DERs)/assets to forecast grid loading and assess available load curtailment potential. This information will enable granular scheduling and deployment of load curtailment to mitigate predicted equipment overload and optimize grid capacity."

HOL notes that the ODERA project is envisioned to build on the learnings from the EVE pilot project and "[w]hen complete, Hydro Ottawa will evaluate the feasibility of scaling the technology for use across its distribution territory."

QUESTION(S):

a) Please provide any and all working papers, reports, and analysis conducted on or in support of the ODERA program.

b) Please provide the customer adoption and outreach plan, including communication plan, budget, and metrics.

c) Please provide and describe the criteria HOL will apply to determine scalability (e.g., technical performance, cost-benefit threshold, customer uptake).

d) Please provide a detailed description (diagrams, data flows, and key algorithmic steps) of the predictive-analytics platform, including any third-party software or cloud services to be procured.

e) Please explain how lessons learned from the ODERA project will inform subsequent DERMS deployments or system-wide non-wires solutions.

f) Please identify the portion of forecast curtailment or flexibility expected from EV chargers and/or V2G resources.

RESPONSE(S):

a) Please refer to the response to interrogatory 2-Staff-69 and Attachment 2-Staff-69(A) - ODERA Project Charter, for more information about the project's scope.

b) Hydro Ottawa is unable to provide the customer engagement plan for the ODERA project at this time, as it is currently under development. That said, the engagement plan will:

- Establish a program brand, include a program enrollment campaign strategy, a detailed privacy policy and outline comprehensive program communications to be issued to enrolled participants.
- Outline the approach and channels used for customer outreach for the flexible load product categories, including but not limited to smart thermostats, electric vehicles and vehicle chargers, and battery storage.
- Ensure the collection of customer feedback to continuously improve the experience through the program lifecycle, building customer trust through education and transparency around privacy, data and device control.

The plan will establish and track metrics related to enrollment, adoption, and retention, though the specific metrics have yet to be finalized.

Elements of the customer engagement plan represent approximately $3.0M. Please refer to part b) of the response to interrogatory 2-SEC-54 for a breakdown of the total estimated cost.

c) An objective of the project is to evaluate the scalability and adaptability of the technological solution for potential future deployment across the broader electricity grid. To confidently evaluate the full benefits of this technology, as well as opportunities for its scalability and adaptability, further learning is required. At this time, Hydro Ottawa is considering several criteria in this assessment, including:

- **Solution Performance:** this involves evaluating the ability to generate accurate load forecasts and curtailment potential predictions, the effectiveness in controlling and managing DERs to achieve load reduction
- **Grid & Asset Performance:** this includes measuring improvements in reliability performance, average and peak asset loading trends
- **Customer Participation:** the number of customers enrolled, by device type, and the grid capacity gained, customer retention rate and engagement rate - how often enrolled customers participate in curtailment events
- **Technology Enablement:** conduct a technology assessment to identify other technologies and grid services that could be leveraged by the solution
- **Cost-Benefit Assessment:** assessment of required costs to deploy at scale, qualitative and indirect benefits from technology enablement.

d) As the project is still in the preliminary design phase the information requested is still under development, including data flows and vendor selections. The predictive-analytics platform will forecast load constraints by analyzing historical load data and key electrical distribution network properties, such as grid connectivity and equipment ratings. Based on these forecasts, the platform will identify available grid services that can be scheduled for deployment to proactively mitigate constraints.

e) The ODERA project is expected to inform subsequent DERMS deployments and the expanded application of non-wires solutions through several key learnings and applications:

- **Scalability and Adaptability Evaluation:** Hydro Ottawa will assess the project's technology for grid-wide deployment, as outlined in response to part (c) above, and to inform and advance the grid modernization roadmap.
- **Addressing Identified Gaps:** The project will address identified gaps by learning about and refining coordination mechanisms for both grid service management and DER dispatch, through refinements of the predictive-analytics platform (see response to part (d) above). These efforts are critical for optimizing resource deployment at both the local grid and bulk system levels, which ensure the effective procurement and use of different types of DERs. The work also includes addressing challenges related to data availability, timing, modeling accuracy, and coordination and will explore how DERs can be used to resolve local constraints and improve capacity management, thereby extending asset life.
- **Knowledge Dissemination:** Hydro Ottawa is committed to broadly sharing ODERA's findings, best practices, and lessons learned. This ensures that the insights gained contribute to the broader advancement of DERMS and non-wires solutions across the industry.
- **Customer Behavior and Participation Insights:** ODERA will provide insights into customer engagement, participation levels, and device performance (for multiple device categories, referenced in answer (b) above) within a demand response program. These insights, particularly regarding enrollment, retention, and the effectiveness of incentives, will be directly applied to design and optimize future customer adoption and outreach plans for DERMS and non-wires solutions as a better understanding of the value and experience customers require to participate is gained.

f) Vehicle-to-Grid (V2G) technology is not currently in scope for the ODERA project. That said, as V2G technology continues to mature, it may become a technology of interest to consider incorporating within the project. No specific curtailment targets were established for EV chargers.

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

2-DRC-9

EVIDENCE REFERENCE:

Exhibit 2, Tab 5, Schedule 4

Preamble:
HOL notes that it continues to invest in green fleet vehicles and technology, where it is available for commercial fleets and cost effective.

QUESTION(S):

a) Please complete the following chart indicating the breakdown of vehicle type in HOL's current vehicle fleet:

Vehicle Type	Fully Electric	Plug-in Hybrid	Hybrid	Non-EV/Hybrid	Total
Heavy Duty Vehicles					
Medium Duty Vehicles					
Light Duty Vehicles					

b) What proportion of HOL's planned fleet renewal investment will involve fully electric and/or hybrid vehicles? Please supplement the information provided in Table 37 by completing the following chart indicating HOL's anticipated breakdown of vehicle type in HOL's planned fleet renewal investment (2026 to 2030):

Vehicle Type	Fully Electric	Plug-in Hybrid	Hybrid	Non-EV/Hybrid	2026-2030 Total
Heavy Duty Vehicles					
Medium Duty Vehicles					
Light Duty Vehicles					

c) Please indicate the estimated quantum of efficiency savings (including fuel cost savings) that HOL anticipates it will achieve by utilizing hybrid vehicles and EVs rather than traditional internal combustion engine vehicles.

RESPONSE(S):

a) Table A below contains the breakdown of vehicle types in Hydro Ottawa's current fleet as at June 2025. Note that the table was modified slightly to include additional fields in order to adequately capture how we categorize our fleet. These modifications have been noted in the footnotes.

Table A - Breakdown of Vehicle Types in Hydro Ottawa's Fleet as at June 2025

Vehicle Type	Fully Electric	Plug-in Hybrid	Hybrid	Hybrid Equipment[1]	Non-EV/ Hybrid	Total
Heavy Duty Vehicles	-	4	1	11	46	**62**
Medium Duty Vehicles	-	-	-	20	8	**28**
Light Duty Vehicles	25	2	8	-	110	**145**
Other[2]	7	-	-	1	38	**46**
TOTAL	**32**	**6**	**9**	**32**	**202**	**281**

b) Table B below contains Hydro Ottawa's anticipated breakdown of vehicle types in Hydro Ottawa's planned fleet renewal investment for 2026 to 2030. Please note that as with the response to part a), the table has been modified to include a column for hybrid equipment as well as the Other vehicle type row.

Table B - Breakdown of Vehicle Types in Planned Fleet Renewal 2026-2030

Vehicle Type	Fully Electric	Plug-in Hybrid	Hybrid	With Hybrid Equipment	Non-EV / Hybrid or TBD[3]	Total
Heavy Duty	-	14	-	22	-	**36**
Medium Duty		-	-	12	4	**16**
Light Duty	TBD	TBD	TBD	-	70	**70**
Other	-	-	-	-	18	**18**
Total	**TBD**	**14**	**TBD**	**22**	**104**	**140**

[1] An additional column was added to reflect vehicles with Hybrid equipment, this refers to vehicles with a conventional internal combustion engine but also have vehicle accessories from a battery.
[2] An additional row, labelled Other has been added to reflect a category of fleet that Hydro Ottawa uses for forklifts and various types of trailers, refer to Section 11.1 of Schedule 2-5-9 for the description of "Other".
[3] For the 2026-2030 period, medium and light duty vehicle acquisitions are budgeted at traditional internal combustion engine rates, refer to the response below Table B for additional details.

As detailed in Section 11.1 of Schedule 2-5-9 - General Plant Investments, Hydro Ottawa is committed to the acquisition of vehicles with hybrid technology where there is an operational and financial business case for doing so.

While Hydro Ottawa Holding Inc. has set a corporate net-zero target by 2030, the current plan does not include specific funding for significant additions of light-duty or medium-duty electric vehicles (EVs) during the 2026-2030 rate period.

This approach considers several factors. First, Hydro Ottawa is already progressing towards electrification, with an expectation of having 48 fully electric vehicles in its fleet by 2025. Second, the utility anticipates that as EV technologies mature, the cost differential between EVs and their internal combustion engine (ICE) counterparts will continue to decrease. Specifically, advancements in battery technology, increased production volumes, and government incentives are expected to lower EV prices. This could enable Hydro Ottawa to acquire a larger number of fully electric vehicles within the same budget, accelerating the transition of Hydro Ottawa's fleet. The medium and light duty vehicle acquisitions are budgeted at the lower traditional internal combustion engine rates, however it is Hydro Ottawa's expectation that a number of these purchases will be a combination of electric vehicles and plug-in hybrids where it makes sense and as such in Table B for the light-duty vehicles this is currently labelled as TBD.

At the same time, Hydro Ottawa recognizes the need to maintain some internal combustion engine (ICE) vehicles in its fleet. This is primarily due to the current limitations in backup power solutions for fully electric vehicles, which are critical for power restoration efforts during outages. The significant cost of providing reliable generation backup for a large fully electric fleet remains a key consideration. Hydro Ottawa must also balance these investments with the need to maintain affordable rates for its customers. The utility will continue to monitor developments in backup power technology, such as mobile power stations and improved battery energy density, which could further support the integration of EVs for all applications.

c) Hydro Ottawa anticipates achieving significant efficiency savings, primarily through reduced fuel consumption and lower maintenance costs, by integrating hybrid and electric vehicles (EVs) into

its fleet. However, the company also recognizes that the shift to EV technology introduces new operational and maintenance considerations.

Hydro Ottawa's internal analysis, which aligns with and in some cases exceeds broader industry trends, indicates substantial fuel cost reductions. By comparing the energy consumption of new all-electric light-duty vehicles (e.g., Ford Lightning and EV Silverado) to the existing fleet's gasoline-powered equivalents, the company has measured an 82% reduction in fuel costs. Trials with specialized hybrid equipment have also yielded positive results in specific applications. For example, a 68’ Elevator bucket truck equipped with a Viatec electric power take-off (ePTO) system demonstrated a 73% reduction in idle time, saving 343 litres of diesel per month, which resulted in an annual fuel savings of approximately $5,844 for this single unit.

While EVs have fewer traditional moving parts and require less frequent servicing (e.g., no oil changes), the company anticipates a shift in maintenance requirements. Projections of a 20%–40% reduction in maintenance costs are balanced against new considerations, including the increased frequency of tire and suspension maintenance due to the heavier weight of EV batteries, potential performance and battery-related issues in extreme cold weather, and the need for ongoing maintenance and upkeep of the fleet-wide EV charging infrastructure.

Hydro Ottawa has leveraged its experience with its already converted vehicles to realize fuel and maintenance cost savings. However, these realized savings are partially offset by the growth in the company's overall fleet size due to headcount growth. While the company believes the overall long-term financial and environmental benefits are significant, it is continuing to gather comprehensive operational data over a longer period to precisely quantify these evolving savings and costs.

INTERROGATORY RESPONSES TO DISTRIBUTED RESOURCE COALITION

3-DRC-10

EVIDENCE REFERENCE:

Exhibit 3, Tab 1, Schedule 1, Attachment B

Preamble:
HOL engaged Itron to complete a weather-normal sales and energy forecast for years 2024-2030. The revenue load forecast includes total energy and demand sales and considers factors such as the adoption of EVs, as well as the electrification of commercial transportation.

QUESTION(S):

a) Please discuss how Itron and HOL's load forecast considers the impact and integration of EVs and EV charging infrastructure and provide any and all related analysis, working papers, and/or reports.

b) Please provide, in the chart format below, an assessment of the impacts on loads and demands — including the load forecast — of your estimate of EVs and distributed generation in each year and any supporting references.

	2024	2025	2026	2027	2028	2029	2030
EVs (number, kW or kWh)							
EV charging infrastructure (number, kW or kWh)							
Distributed Generation (number, type, kW or kWh)							
etc.							

RESPONSE(S):

a) Hydro Ottawa has described the approach and methodology taken to forecast the number of EV's and kWh allocation to each rate class for the 2026-2030 Test years in Schedule 3-1-1 - Revenue Load and Customer Forecast Section 9. ITron has detailed the impact and integration of this analysis and data into the revenue load forecast in Section 3.6 of Attachment 3-1-1(B) - Hydro Ottawa Long-Term Electric Energy and Demand Forecast. This is the only report that has been prepared for EV integration in the revenue load forecast for the Application. Further details of the analysis completed and how Hydro Ottawa incorporated EV's into the forecast are provided below.

Determining New EV Registrations (Annual Growth Rate)

To determine the annual growth rate for LDEV percentage share of total vehicles in Hydro Ottawa's service territory, Statistics Canada data for new vehicle registrations in Ontario was used. The average year-over-year change in annual percentage of new LDEV[1] for 2021-2023 was computed (shown in Table A). Hydro Ottawa notes on Page 17 of Schedule 3-1-1 - Revenue Load and Customer Forecast the growth trend should have read 1.88%, not 0.8%.

[1] Sum of Battery electric and Plug-in Hybrid.

The estimated new LDEV in Hydro Ottawa Territory was then forecast based on ensuring the year-over-year change in LDEV % of new registrations aligned with the average annual growth rate calculated in Table A. Table B displays the annual estimated new LDEV and year-over-year change in LDEV % of new vehicle registrations in Hydro Ottawa's service territory.

Table A - LDEV Growth Rate

Total Ontario	2020	2021	2022	2023	Average
LDEV % of New Registrations	1.8%	3.1%	6.5%	7.4%	
Year-over Year Change		**1.4%**	**3.4%**	**0.9%**	**1.88%**

Table B - Annual Estimate New LDEV in Hydro Ottawa's Service Territory

	2023	2024	2025	2026	2027	2028	2029	2030
Estimate New Vehicles in Hydro Ottawa Territory	36,560	36,925	37,295	37,667	38,044	38,425	38,809	39,197
Estimate New LDEV Hydro Ottawa Territory	**2,689**	**3,400**	**4,150**	**4,900**	**5,650**	**6,400**	**7,200**	**8,000**
LDEV % of New Registrations	7.4%	9.2%	11.1%	13.0%	14.9%	16.7%	18.6%	20.4%
Year-Over-Year Change		**1.85%**	**1.92%**	**1.88%**	**1.84%**	**1.80%**	**1.90%**	**1.86%**

Annual Incremental kWh per LDEV

To determine the annual incremental kWh per LDEV, the analysis completed by Black and Veitch was leveraged. More details are found in Attachment 2-5-4(F) - Decarbonization Study, Page 3. Table C provides the estimated kWh per LDEV per year incorporated for the incremental LDEV kWh forecast.

Table C - LDEV Annual Energy Consumption

Average KM Per Year	*A*	16,196
kWh Per KM	*B*	0.2
Charger Efficiency	*C*	85%
kWH Per LDEV	***D = (A*B)/C***	**3,811**

Apportioning to Rate Classes

Hydro Ottawa apportioned LDEVs to different rate classes by analyzing:

- Data from the Ministry of Transportation (MTO)
- Zero Emission Vehicle Infrastructure Program (ZEVIP) data
- Customer data

Based on the passenger/commercial split of vehicles in the Ottawa-Carleton area from MTO data, the forecast number of EVs was apportioned to Residential and Commercial (89% Residential/11% Commercial). Hydro Ottawa further split the Commercial number of EVs to each General Service and Large User rate classification through analysis of chargers installed through the ZEVIP program and known EV charging accounts. See Table D for breakdown of kWh by rate classification.

Table D - 2024-2030 Estimate Incremental EV kWh by Rate Classification

Year	# of new LDEVs	Residential	GS<50	GS 50-1,499	GS 1,500-4,999	GS > 5,000	Total
Class allocation		**89.0%**	**2.7%**	**7.4%**	**0.7%**	**0.2%**	**100.0%**
2024	3,400	11,531,541	347,242	962,689	88,106	27,209	12,956,788
2025	4,150	14,075,264	423,839	1,175,047	107,541	33,211	15,814,903
2026	4,900	16,618,986	500,437	1,387,405	126,977	39,213	18,673,018
2027	5,650	19,162,708	577,034	1,599,763	146,412	45,215	21,531,133
2028	6,400	21,706,431	653,632	1,812,121	165,847	51,217	24,389,248
2029	7,200	24,419,735	735,336	2,038,636	186,578	57,620	27,437,904
2030	8,000	27,133,038	817,040	2,265,151	207,309	64,022	30,486,560

b) Please see Table D in response a) for the number of incremental EV and kWh incorporated into the revenue load and customer forecast for 2024-2030. A forecast of EV charging infrastructure was not developed.

Refer to Schedule 2-5-4 - Asset Management Process, Section 9.3.2 for details Hydro Ottawa's 2026-2030 Distributed Energy Resources (DERs) planning forecast. Aside from eDSM target savings, which include DER programs such as the Home Renovations Saving Program (HRSP), Hydro Ottawa has not forecasted load and demand impacts from DERs in the revenue load and customer forecast for the Test Years. However any increase in historical amounts would impact trend lines.